A Framework for Coordinated Stormwater Work in Metro-East

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Prepared by the Metro-East Regional Stormwater Committee

The Metro East Regional Stormwater Committee

This document has been created and recommended by the Metro East Regional Stormwater Committee. The Committee is not a legal entity, but has assumed the role of an ad hoc steering committee composed of representatives from three counties - Madison, St. Clair, and Monroe, with the guidance of the following Agencies:

- U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Army Corp of Engineers, St. Louis District
- U.S. Environmental Protection Agency, Region 5
- Illinois Environmental Protection Agency
- Illinois Department of Natural Resources

The Committee has been steering solutions and actions since 1992, and has been involved in the expenditure of over 10 million dollars. Through this document, it recommends a more permanent public commitment to stormwater problems.

The Vision

"You can't take the water out of the storm, but you can take the storm out of the water." With this belief, members of the Metro-East Regional Stormwater Committee have envisioned a region in which properly managed stormwater leads to a higher quality of life for the residents and better protection for the overall environment in Metro-East. In order to make this vision possible, the Committee has undertaken an effort to provide a general framework for development and implementation of comprehensive stormwater management in the area. This document is intended to support this effort by outlining the specifics of the framework - all of which are designed to achieve success in addressing persistent stormwater problems.

The Stormwater Effort in Metro-East

The Area

The area called "Metro East" consists of the Illinois part of the St. Louis Metropolitan Area, east of the Mississippi River in Madison, St. Clair, and Monroe counties. The Mississippi River flood plain portion of Metro East, dubbed the "American Bottoms," is a narrow strip of rich land that runs for one hundred miles along the east side of the River, south of its confluence with the Missouri River. This area and the many acres adjacent to it have been used for agricultural production for decades, as the rich soils provide a fertile foundation for Midwestern crops. The Bottoms are surrounded by loess and limestone bluffs.

The Metropolitan American Bottoms area, historically full of diversity and value has, like many other areas in the country, experienced severe depopulation problems due to local and national economic restructuring. The recurring flooding and stormwater management problems that residents of these communities face today are a result of this economic adjustment and land use changes caused by upland urbanization.

The Problem

Internal drainage systems in the American Bottoms consist of a number of creeks, streams, and man-made ditches and canals which carry water from upland areas downstream into the Mississippi and eventually down to the Gulf of Mexico. The man-made drainage systems currently in place were originally constructed to drain agricultural land - they were never designed or intended to convery runoff from residential and urbanizing areas.

For years, residents and businesses in these communities have suffered damages caused by flooding. Homes are damaged and destroyed, personal possessions are lost, and stock and inventory is washed away along with a sense of safety and security. Prime farmland used to produce two-thirds of U.S. horseradish crops and fresh vegetables for Soulard Market are flooded and damaged each year.

Increases in the amount of impervious surfaces in upland areas, and reduced streamflow capacity caused by sedimentation and debris as a result of poor maintenance and an undersized system have resulted in flood damages in many American Bottoms communities. Another "natural" complication is due to the presence of "loess" soils in the area - a very fine, lightweight, silty material derived from windblown glacial material. Loess and limestone bluffs are highly erosive. Sediment carried away by erosion is eventually deposited in these communities and in nearby wetlands, clogging an already overburdened drainage system.

The communities in American Bottoms have received Presidential Disaster Declarations for flooding four times in the last four years. In 1995, areas that had not flooded for 30-40 years were documented as being flooded under two to three feet of water. A number of factors have contributed to disastrous flooding problems in recent years:

1) Upstream Growth & Urbanization - as communities up slope and upstream continue to grow and expand, they create more runoff, which in turn is delivered to downstream neighbors. Natural or open areas, as well as agricultural land that was once porous and able to absorb rainfall are now covered with impervious surfaces, such as concrete. Rainfall cannot soak into these upland areas, and is forced down steep upland slopes and into the bottomland areas at high speeds. Too much water comes too fast to these receiving communities.

2) Drainageway Obstructions - over the years, silt and sediment have been deposited in these streams, ditches, and canals. This is the result of erosion from agricultural, urbanization, and other human activities that disturbed the balance of nature. Once this sediment has built up, other debris, such as logs, trees, branches, and garbage becomes lodged in the drainageway as well. These obstructions reduce the amount of water the canals can hold and also alter the flow of that water. Lack of funds for adequate maintenance on the ditches and canals for nearly 40 years is the primary cause of this excess accumulation of sedimentation and debris.

3) Inaccessibility to Drainageways - the banks along most of the drainageways, ditches, and creeks are overgrown with vegetation such as weeds and trees. These misplaced plants make long overdue maintenance even more difficult.

Due to these three factors, blocked drainageways now overflow their banks with minimal rainfall. A 2-inch rainfall becomes a catastrophe, even though ditches and canals were designed to handle agricultural runoff from a 5-year storm event.

The Beginning of a Solution

After decades of attempts to improve drainage that go as far back as the Civil War, the Metro East area saw a renewed interest in managing water resources in the 1990s. In July 1990, the Illinois Department of Conservation requested assistance to reduce the siltation and water quality impairments affecting Horseshoe Lake from the Madison County Soil and Water Conservation District. At about the same time, assistance was requested from the St. Clair County Soil and Water Conservation District for the purpose of solving flooding problems in the Caseyville area. To begin work on these problems, planning committees were formed independently in each of the counties. It was not long, however, before it was apparent that a regional approach, including both counties, was needed to address concerns. To that end, both the Madison County and St. Clair County Boards authorized resolutions in September 1992 to create a stormwater runoff planning committee consisting of six people from each county, with the cooperation of the Southwestern Illinois Conservation and Development Council, U.S. Army Corp of Engineers, Illinois Department of Transportation - Division of Water Resources (now Illinois Department of Natural Resources Office of Water Resources), and the Soil Conservation Service (now Natural Resource and Conservation Service). The committee was to do coordinated planning for stormwater control.

A major step was taken in 1994 when both counties committed $100,000 per year for five years to support an NRCS planning team. As a result, the NRCS provided staff to an office called the Metro East Watershed Planning Office. By this time, the stormwater runoff planning committee formally became the Metro East Regional Stormwater Committee. A memorandum of understanding in the same year established the Metro East Resource Coordination Committee, which was given the responsibility of advising the main Stormwater Committee in technical matters. In June 1995, Monroe County was added as a participant to both committees. Both Madison and St. Clair Counties contributed $200,000 to the 1994 agreement - Monroe added $38,000 - before the local contributions were terminated in 1996. The NRCS Watershed Planning Office completed several resource plans for the Metro East area, and remained until July 1998.

Local leaders decided that a locally funded employee that is responsible to the local authorities was needed. To this end, a "Stormwater Coordinator" was hired in December 1997 by the Metro East Sanitary District with cooperation from Madison County. The Stormwater Coordinator was to work as a facilitator on behalf of the Stormwater Committee. A stormwater office was soon established with secretarial support.

The Metro East Regional Stormwater Committee has stimulated the expenditure of money on several construction projects and buyouts. One of the major contributions in the last several years has been through NRCS' Metro East Ditch Cleanout Project. With the assistance of

IDNR's Office of Water Resources, and funds provided by the Federal Emergency Management Agency and Illinois Emergency Management Agency, NRCS coordinated the cleanout of about 33 miles of ditches and drainageways in the area. Removal of sediment and debris, and clearing of vegetation were the primary focus. However, also included was tree mitigation on about 123 acres, which involved forested wetlands and non-wetland tree mitigation. Over $10 million has been spent in construction costs to remove sediment from the ditches and to additionally purchase property and homes that are continually flooded. A more detailed look of projects that have contributed to stormwater control can be found in the Appendix of this document.

With the support of the Stormwater Committee, the U.S. Army Corp of Engineers is cuurently reviewing an existing Congressional authorization (1965) called the East St. Louis Interior Flood Control Project. The review is a multiple year commitment by the Corp to identify potential improvements for ecosystem restoration and reduction of interior damages. Past reviews of the same potential project failed to justify any work, because they were based on a cost/benefit ratio that was based upon the property values of the area impacted by floods. The current review, however, is based upon the importance of restoring the ecology of the Metro-East region. Flood control in this scenario comes from re-establishing the natural conditions of the land as best as possible, which will allow for the containment of water through wetlands. This is the same authorization that is currently being used to restore the Everglades in Florida.

Our Framework

While it is evident that much has been done in Metro East in response to stormwater problems, the Metro East Regional Stormwater Committee recognizes that there is much more work that lies in the future. If the efforts to control runoff stopped at the projects above, the area would still be effected by large quantities of water and poor water quality. The increasing frequency of rain storms and the rapid urbanization of the Metro-East area only serve to make solutions to the problem more difficult. With this realization, the Committee presents in this document a Framework that is meant to fulfill the vision of properly managed stormwater leading to a higher quality of life for the residents and better protection for the overall environment in Metro-East. Our framework consists of a set of goals that, when realized, will bring this vision to reality. These goals are explained in detail below.

Our Goals

Goal 1 - Gain Legal Authority

It is well recognized that giving a Metro-East the legal authority to create a body (or bodies) that acts in solving stormwater problems is essential. This authority, whether it comes from legislation at the State level or through another route, would allow for the efficient, unified management of stormwater in the area. Such an action has been accomplished already by several counties in Northern Illinois under Public Act 85-905. Under this Act, stormwater planning committees, under the county boards but made up of equal municipal and county representatives,

can be formed. The purpose of the Northern Illinois effort is to consolidate existing stormwater management into unified county-wide plans, to set minimum county-wide standards for floodplain and stormwater management, and to prepare and implement county-wide stormwater management plans. The participating counties have the authority to tax for plan implementation. A similar approach could be taken in Metro-East, but possibly at a holistic regional level as opposed to county levels. To be successful, however, the legal authority must a) take a watershed approach, b) look at water quantity and quality, and c) incorporate stakeholder participation.

✓ *A Watershed Approach*

Any approach to address stormwater problems in the Metro-East must include a look at the entire set of watersheds that make up the area. A watershed is the area of land that water flows across or under on its way to a stream, river, or lake. On its way, water travels over the surface and across farm fields, forest land, suburban lawns, and city streets, or it seeps into the soil and travels as ground water. Large watersheds, such as the Mississippi River Watershed, are made up of several smaller watersheds across several states. In the three county Metro East area, there are 4 watersheds. They are the Shoal Watershed, the Lower-Kaskaskia Watershed, the Cahokia-Joachim Watershed, and the Peruque-Piasa Watershed. You can see these in detail on the map in this document's Appendix.

A watershed approach to solving stormwater problems is a strategy for effectively protecting and restoring aquatic ecosystems and protecting human health. This strategy has as its premise that many water quality and ecosystem problems are best solved at the watershed level rather than at the individual waterbody or discharger level. Traditionally, water quality and quantity improvements have focused on specific sources of pollution, such as sewage discharges, or specific water resources, such as a river segment or wetland. While this approach may be successful in addressing specific problems, it often fails to address the more subtle and chronic problems that contribute to a watershed's decline. For example, pollution from a sewage treatment plant might be reduced significantly after a new technology is installed, and yet the local river may still suffer if other factors in the watershed, such as habitat destruction or polluted stormwater runoff, go unaddressed. Watershed management can offer a stronger foundation for uncovering the many stressors that affect a watershed. The result is management better equipped to determine what actions are needed to protect or restore the resource.

Besides the environmental pay-off, the watershed approach can save time and money. Whether the task is monitoring, modeling, issuing permits, or reporting, a watershed framework offers many opportunities to simplify and streamline the workload. For example, synchronizing monitoring schedules so that all monitoring within a given area occurs within the same time frame can eliminate duplicative trips and greatly reduce travel cost.

Watershed protection can also lead to greater awareness and support from the public. Once individuals become aware of and interested in their watershed, they often become more involved in decision-making as well as hands-on protection and restoration efforts. Through such

involvement, watershed approaches build a sense of community, help reduce conflicts, increase commitment to the actions necessary to meet environmental goals, and ultimately, improve the likelihood of success for environmental programs.

✓ ***The Quantity and the Quality***

In the minds of many people in Metro-East, the sheer quantity of water that "fills" the area after large rainstorms is the problem we have related to stormwater management. Who, in looking at the amount of water on their lands or in their basements would think otherwise? While this, indeed, is a major problem that requires solutions, we must look beyond the quantity to the issue of quality. According to the 1996 National Water Quality Inventory, a biennial summary of State surveys of water quality, approximately 40 percent of surveyed U.S. waterbodies are still impaired by pollution and do not meet water quality standards. A leading source of this impairment is polluted runoff. In fact, according to the Inventory, 50 percent of impaired rivers are affected by urban/suburban and construction sources of storm water runoff. With this in mind, it is important that water management is conducted with both quality and quantity in mind. In a unique way, working on one will automatically bring benefit to the other.

✓ ***Stakeholder Participation***

Efficiency is greatly increased once all agencies with natural resource responsibilities begin to work together to improve conditions in a watershed. In its truest sense, watershed protection engages all partners within a watershed, including Federal, State, Tribal and local agencies. By coordinating their efforts, these agencies can complement and reinforce each others' activities, avoid duplication, and leverage resources to achieve greater results.

Other stakeholders must be brought in as well, however. These include members of community, environmental, health, and business organizations, as well as individuals from the general public. With the incorporation of area-wide participation, we not only increase the chances of needed solutions occurring, but allow for the use of resources that formal agencies would not otherwise have. After all, it is the lives of those in the community that are affected by problems related to stormwater.

Goal 2 - Assure Stable Funding

It goes without saying that money is behind much of what we accomplish in this world. With it, we are able to fund necessary parts of any project as they arise. Without it, we are left to the meager resources that each of us face on a daily basis. In terms of stormwater management, funding is essential to do research on an area, to educate the public, to have full-time people working on solutions, and to bring in contractors with specialized expertise, among other things. To do it's job, Metro-East needs stable sources of funding that will bring it through what will probably be a multi-year process to properly address stormwater problems. These sources must be identified and used to the benefit of the greater community.

Goal 3 - Plan for Federal Phase II Stormwater Regulations

Phase I of the U.S. Environmental Protection Agency's (EPA) stormwater program was promulgated in 1990 under the Clean Water Act. Phase I relies on National Pollutant Discharge Elimination System (NPDES) permit coverage to address stormwater runoff from (1) "medium" and "large" municipal separate storm sewer systems, (2) construction sites greater than 5 acres, and (3) ten categories of industrial sources. The Stormwater Phase II Proposed Rule is the next step in EPA's effort to preserve, protect, and improve the Nation's water resources from polluted stormwater runoff. The Phase II proposed program would expand the existing Phase I program by requiring owners and operators of "small" municipal separate storm sewer systems in urbanized areas, as well as owners and operators of construction activities that disturb 1-5 acres of land, to implement programs and practices to control polluted stormwater runoff through the use of NPDES permits.

The permits would require the implementation of stormwater discharge discharge management controls, commonly referred to as "best management practices" (BMPs). These practices are generally designed to be used to satisfy six minimum control measures: public education and outreach, public participation/involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control, and pollution prevention/good housekeeping.

The implementation of the Phase II regulations in Illinois will be the primary responsibility of the Illinois Environmental Protection Agency and go a long way in providing for good stormwater management in Metro-East. They will most certainly need, however, the existence of a legal authority at the local level and the coordination of many stakeholders to aid in implementation. For example, the public education and participation measures described above will require the creation and distribution of stormwater management information to the area-wide community - something that only a local group of people can accomplish easily and effectively. Another example concerns the illicit discharge measure. In this case, local ordinances may need to be passed by cities or counties in order to accomplish the detection and elimination of the discharges. Beyond this is the possibility that local authorities will be part of the permit process. In any case, the sheer breadth of the rules likely will require active participation by several groups at various levels.

Goal 4 - Create a Comprehensive Plan

A body (or bodies) with legal authority regarding stormwater in Metro-East could create a plan that comprehensively pulls together all steps that are needed to properly manage stormwater in the area. As opposed to earlier attempts at such planning, this plan would have a legal basis and incorporate Madison, St. Clair, and Monroe counties. Recognizing the need to limit the occurrences of extensive flood damages, the plan would:

- recognize that stormwater management needs to be done on a watershed basis,
- reduce potential for stormwater damage,
- control future increases in stormwater damage,
- protect and enhance the quality of water resources,
- preserve and enhance aquatic environments,
- control sediment and erosion,
- and promote equitable, acceptable, and legal stormwater measures.

Like the legal body that created it, such a plan should take a unified watershed approach, deal with water quantity *and* quality, and call for the participation of a varied group of stakeholders.

Goal 5 - Carry Out An Education Effort Directed at the Public

If you were to go to, say, St. Clair Square and ask the shoppers at random to tell their thoughts about the stormwater problem in Metro-East, you would probably get most to state that they didn't know there is such a problem. A few others would describe the flooding in the area (as evidenced by the water in their basements), but couldn't tell you why it happens.. A still smaller minority of shoppers would know about the problem, it causes, and possible solutions. Why so much lack of information? Because many of us have done little to get the word out. Getting the word out is essential to gaining broad public support for any possible solutions to stormwater problems. Public education, which should be directed at both the general public and those in administrative positions in the various local governmental bodies of Metro-East, can specifically accomplish many things. A few examples are listed below:

- Explain to those whose properties are affected by water-related problems (i.e. flooding) the reason for the problems and enlist their help in possible solutions.
- Give to those who don't have any water-related problems, but affect those who do, a list of actions that will help prevent these from occurring.
- Gather broad-based support from the entire area for any regulations or ordinances that need to be put in place as part of a comprehensive stormwater management plan.
- Encourage the ideas of citizens and administrators in solving the stormwater problem in the most cost effective and efficient way possible.

As with anything important, education is a method of raising issues and bringing full public participation into the process of solution making. This is why it is essential for comprehensive coordinated stormwater work in Metro East.

Conclusion

The Metro-East Regional Stormwater Committee believes that properly managed stormwater can lead to a higher quality of life for the residents, and better protection for the overall environment

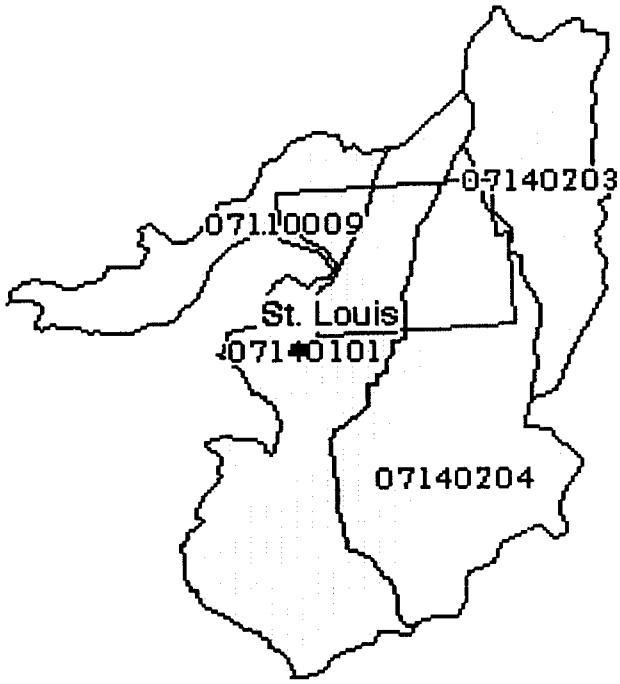
in Metro-East. This can be accomplished by achieving the five goals put before you in this document:

1. *Gaining Legal Authority*
2. *Assuring Stable Funding*
3. *Planning for Phase II Stormwater Regulations*
4. *Creating a Comprehensive Plan*
5. *Carrying Out an Education Effort to the Public*

Using this framework, the Metro-East Regional Stormwater Committee would like to move forward in fulfilling the vision. It may take months, or it may take years, to fully realize the vision put before us. It all starts here, however, with the first step of presenting a plan for action - a plan that will benefit the residents of Metro-East for generations to come.

Appendix

List of Stormwater Projects by Watershed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